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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,714	05/25/2006	Tadaaki Harada	062568	5487

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
12/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,714	HARADA ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06 May 2007 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 5/06.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1-14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 7,259,803 in view of US Patent No. 5,677,045.

'803 fails to claim that the resin sheet, in addition to the glass fiber cloth-like material, further comprises inorganic particles, let alone that they are silica particles, or that they are present in the amount of 15 to 60 weight %.

However, '045 teaches that a resin sheet comprising a glass fiber cloth-like material (sheet obtained by impregnating a woven reinforcement with a resin

component that is layered, piece of cloth made of inorganic type fiber glass, column 6, lines 57-65) further comprises inorganic particles (woven reinforcement and an inorganic filler, column 2, lines 50-55, which are particles added to a matrix to improve its properties), such as silica particles, for the purpose of adjusting the coefficient of thermal expansion (column 5, lines 30-37). Thus, although '045 fails to teach that the silica particles are present in the resin sheet in an amount of 15 to 60 weight %, in the absence of a demonstration of criticality, it would have been obvious to one of ordinary skill in the art, to have added the silica particles in an amount within the claimed range of 15 to 60 weight %, to the resin layer in addition to the glass fiber cloth-like material, to fill in the portions of the resin layer that is not occupied by the glass fiber cloth-like material, for the purpose of adjusting the thermal expansion coefficient of the resin sheet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have added inorganic particles to the resin sheet claimed by '803, such as silica particles, in addition to the glass fiber cloth-like material, in an amount within the claimed range of 15 to 60 weight %, in order to adjust the thermal expansion coefficient of the resin sheet, as taught by '045.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1-2, 5-8, 10-14 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Shibahara (US 7,132,154).

Regarding claims 1-2, 5, 7, Shibahara teaches a resin sheet (plastic sheet substrate, column 10, lines 12-13), characterized in that it comprises a cured epoxy resin layer (column 7, lines 55-60) containing in a resin (epoxy resin (a), column 7, lines 55-60) a glass fiber cloth-like material (glass filler (b), glass cloths most preferred, column 9, lines 1-8) and inorganic particles (composite composition may further contain another inorganic filler, column 6, lines 43-47, which are particles added to a matrix to improve its properties). Shibahara teaches that the refractive index difference between the epoxy resin that forms the cured resin layer and the glass fiber cloth-like material is more preferably not more than 0.005 (column 3, lines 20-25), which is within the claimed range of 0.01 or less. Shibahara teaches that the light transmittance of the resin sheet is 88% or more when measured at 550 nm (columns 13-14, lines 50-60); which is within the claimed range of 88% or more.

Thus, although Shibahara fails to disclose that the resin sheet is structured to have a haze value of 10% or lower, where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or

chemistry, these differences are presumed to be minor and obvious in the absence evidence to the contrary. In the instant case, Shibahara teaches the presently claimed composition, as described above, and that the resin sheet has improved smoothness and good transparency (column 10, lines 12-15), wherein the transparency is not impaired by the components of the resin sheet (column 9, lines 45-48). Shibahara teaches that the diffused refraction of light passing through the resin is undesirable (column 1, lines 55-58), which means that haze is undesirable.

Regarding claim 6, Shibahara teaches that the coefficient of linear expansion is equal to or less than 2.0×10^{-5} at 30 to 150 °C (most preferably not more than 20 ppm, column 10, lines 1-6), which is within the claimed range of equal to or less than 5.0×10^{-5} at 25 to 160 °C.

Regarding claim 8, Shibahara teaches that a gas barrier layer is further laminated on the resin sheet (column 10, lines 20-22).

Regarding claims 10-11, Shibahara teaches a liquid crystal display device characterized in that it inherently comprises as a liquid crystal cell substrate (liquid crystal display device substrate, in particular of the active matrix type, column 15, lines 30-32), the resin sheet described above (transparent composite composition, column 15, lines 25-30).

Regarding claims 12-13, Shibahara teaches an electroluminescence display device, characterized in that it comprises a substrate (organic EL device substrates, column 15, lines 30-31) characterized in that it comprises the resin sheet described above (transparent composite composition, column 15, lines 25-30).

Regarding claim 14, Shibahara teaches a substrate for a solar cell that comprises the resin sheet described above (solar cell substrates, column 15, lines 25-35).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara as applied to claims 1-2, 5-8, 10-14 above.

Shibahara teaches the resin sheet, characterized in that it comprises a cured resin layer containing in a resin a glass fiber cloth-like material and inorganic particles, and is structured to have a haze value within the range of 10% or lower, as described above. Shibahara fails to specify that the inorganic particles are silica particles, or that they are contained in the cured resin layer in an amount within the range of 15 to 60 weight %.

However, Shibahara teaches that the glass fiber cloth-like material is a most preferred form of the glass filler (b), of which glass particles can also be a part of (glass beads, glass flakes, glass powders, column 9, lines 1-8), wherein the glass filler (b) as a whole is incorporated more preferably in an amount of 30 to 70% by weight, for the purpose of reducing the linear expansion coefficient of the resin sheet (composite

formulation, column 9, lines 15-20), and that the resin layer can further comprise another inorganic filler (column 9, lines 43-49). Silica particles are a species of glass particles. Thus, although Shibahara fails to specify that the silica glass particles are present in an amount of 15 to 60 weight %, in the absence of a demonstration of criticality, it would have been obvious to one of ordinary skill in the art, to have added silica particles in an amount within the claimed range of 15 to 60 weight %, to the resin layer, in addition to the glass fiber cloth-like material, to fill in the portions of the resin layer that is not occupied by the glass fiber cloth-like material, for the purpose of further reducing the linear expansion coefficient of the resin sheet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided inorganic silica glass particles, in an amount that is within the range of 15 to 60 weight %, in addition to the glass fiber cloth-like material, in the resin sheet of Shibahara, in order to further reduce the linear expansion coefficient of the resin sheet.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara as applied to claims1-2, 5-8, 10-14 above, and further in view of Babb (US 5,730,922).

Shibahara teaches the resin sheet, characterized in that it comprises a cured resin layer containing in a resin a glass fiber cloth-like material and inorganic particles, and is structured to have a haze value within the range of 10% or lower, as described above. Shibahara fails to teach that the resin sheet is further laminated with a hard-coat layer.

However, Babbs teaches a resin sheet (laminate of layers, column 2, line 18) comprising a layer comprising glass fiber cloth-like material (woven glass fiber, column 2, line 40) and an epoxy resin (column 2, lines 44-45). Babbs teaches that the resin sheet is further laminated with a layer for providing the surface of the resin sheet with scratch resistance (column 2, line 32), which is a hard-coat layer that can resist scratching.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have further laminated a hard-coat layer on the resin sheet of Shibahara, in order to provide the desired surface protection such as scratch resistance, as taught by Babbs.

5. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being obvious over Akada (US 7,259,803) in view of Nagai (US 5,677,045).

The applied reference has a common assignee, Nitto Denko Corporation, and common inventors Harada, Akada and Sakata, with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference

are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claims 1, 3-5, Akada teaches a resin sheet, characterized in that it comprises a cured epoxy resin layer containing in a resin a glass fiber cloth-like material, and is structured to have a haze value of 10% or lower (claims 1, 6-8). Akada fails to teach that the resin sheet, in addition to the glass fiber cloth-like material, further comprises inorganic particles, let alone that they are silica particles, or that they are present in the amount of 15 to 60 weight %.

However, Nagai teaches that a resin sheet comprising a cloth-like material further comprises inorganic particles (woven reinforcement and an inorganic filler, column 2, lines 50-55, which are particles added to a matrix to improve its properties), such as silica particles, for the purpose of adjusting the coefficient of thermal expansion (column 5, lines 30-37). Thus, in an absence of a demonstration of criticality, although Nagai fails to]teach that the silica particles are present in the resin sheet in an amount of 15 to 60 weight %, in the absence of a demonstration of criticality, it would have been obvious to one of ordinary skill in the art, to have added silica particles in an amount within the claimed range of 15 to 60 weight %, to the resin layer in addition to the glass fiber cloth-like material, to fill in the portions of the resin layer that is not occupied by the

glass fiber cloth-like material, for the purpose of adjusting the thermal expansion coefficient of the resin sheet.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have added inorganic particles to the resin sheet of Akada, such as silica particles, in addition to the glass fiber cloth-like material, in an amount within the claimed range of 15 to 60 weight %, in order to adjust the thermal expansion coefficient of the resin sheet, as taught by Nagai.

Regarding claim 2, Akada teaches that the refractive index difference between the epoxy resin that forms the cured resin layer, and the glass fiber cloth-like material is 0.01 or less (claim 1).

Regarding claim 6, Akada teaches that the resin sheet has a coefficient of linear expansion of not more than 3.00×10^{-5} at 25 to 160 °C (claim 2), which is within the claimed range of equal to or less than 5.0×10^{-5} at 25 to 160 °C.

Regarding claim 7, Akada teaches that the resin sheet has a light transmittance of 88% or higher (claim 3).

Regarding claim 8, Akada teaches that the resin sheet further comprises a gas barrier layer (claim 10), which means that it is laminated.

Regarding claim 9, Akada teaches that the resin sheet further comprises a hard-coat layer (claim 9) which means that it is laminated.

Regarding claims 10-11, Akada teaches that the resin sheet is comprised in a liquid crystal cell substrate of a liquid crystal display device (claims 11-13).

Regarding claims 12-13, Akada teaches that the resin sheet is comprised in a substrate in an electroluminescence display (claims 15-16).

Regarding claim 14, Akada teaches that the resin sheet is comprised in a substrate for a solar cell (claim 17).

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris, can be reached on (571)272-1478. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/

Sow-Fun Hon